Amendments to the Claims:

1. (amended) A circuit for measuring a physical condition of an object, comprising

a sensor configured to operate by the eddy current principle,

an evaluation unit connected to the sensor via a connection line for evaluating a measuring signal of the sensor, ~~and~~

a compensation line connected to the evaluation unit for compensating for the temperature of the connection line, and

a direct current or a low frequency alternating current signal source connected to the compensation line so as to permit the generation of a temperature dependent compensation line signal (200).

2. (originally presented) The circuit of claim 1, wherein the compensation line comprises a cable or wire.

3. (originally presented) The circuit of claim 2, wherein the connection line comprises a coaxial cable.

4. (originally presented) The circuit of claim 3, wherein the compensation line connects at one end to the shield of the coaxial cable.

5. (originally presented) The circuit of claim 4, wherein the compensation line connects to the coaxial cable at the end adjacent the sensor.

6. (originally presented) The circuit of claim 5, wherein the coaxial cable serves as a return line of the compensation line to the evaluation unit.

7. (originally presented) The circuit of claim 1, wherein the compensation line is connected to the connection line.

8. (originally presented) The circuit of claim 7, wherein the compensation line is shielded against the connection line.

9. (originally presented) The circuit of claim 1, wherein the compensation line is arranged parallel to the connection line.

10. (originally presented) The circuit of claim 1, wherein the compensation line has a separate return line.

11. (cancelled)

12. (amended) The circuit of Claim 1[[11]], further comprising an analog circuit responsive to the temperature dependent compensation line signal (200), and for generating a compensation signal (300).

13. (originally presented) The circuit of claim 12, further comprising a circuit component arranged for correcting the compensation signal (300) generated by the analog circuit by multiplying the compensation signal with at least one correction factor.

14. (originally presented) The circuit of claim 13, wherein the sensor comprises a measuring coil, and further comprising a generator for generating a high frequency alternating current measuring signal (100) which is supplied to the measuring coil.

15. (originally presented) The circuit of claim 14, further comprising a further generator arranged for generating a direct current signal (400) and/or a low frequency alternating current signal, which is superposed with the high frequency alternating current measuring signal (100).

16. (originally presented) he circuit of claim 15, further comprising an analog circuit arranged for separating and processing the high frequency alternating current measuring signal (100), and the superposed signal and for generating a temperature dependent compensation measuring signal (500).

17. (originally presented) The circuit of claim 16, further comprising a component arranged for forming a difference signal (600) of the temperature dependent compensation measuring signal (500) and the corrected temperature dependent compensation signal (300).

18. (originally presented) The circuit of claim 17, further comprising components arranged for correcting the difference signal (600), and for correcting the temperature dependent compensation signal (300), by multiplying the difference signal and/or the temperature dependent compensation signal (300) with correction factors.

19. (originally presented) The circuit of claim 14, further comprising a component arranged for demodulating the high frequency measuring signal (100) in order to generate a direct current voltage measuring signal (700) that is dependent on the physical condition.

20. (originally presented) The circuit of claim 19, further comprising a component arranged for forming a composite signal (800) of the direct current voltage measuring signal (700) that is dependent on the physical condition, and/or the corrected difference signal (600), and/or the corrected temperature dependent compensation signal (300).

21. (originally presented) The circuit of claim 20, wherein a linearization circuit is arranged for linearizing the composite signal (800) to produce a linearized composite signal (900).

22. (originally presented) The circuit of claim 21, further comprising a component arranged for forming a further composite signal (1000) of the linearized composite signal (900), and/or the corrected difference signal (600), and/or the corrected temperature dependent compensation signal (300).

23. (originally presented) The circuit of claim 1, wherein the sensor comprises a measuring coil, and further comprising a supplementary capacitor arranged for tuning the resonant frequency of the oscillatory circuit formed by the measuring coil, and/or the capacitance, and/or the inductance of the connection line, and/or the supplementary capacitor.

24. (originally presented) The circuit of claim 1, further comprising a temperature sensor arranged in the direct vicinity of the measuring coil for measuring the temperature of the sensor.

25. (originally presented) The circuit of claim 24, wherein the sensor comprises a measuring coil, and wherein the temperature sensor is thermally coupled with the measuring coil.

26. (originally presented) The circuit of claim 24, further comprising a generator arranged for generating a temperature sensor signal (1100).

27. (originally presented) The circuit of claim 26, further comprising an analog circuit arranged for preparing and generating a temperature dependent temperature sensor measuring signal (1200).

28. (amended) A method of measuring a physical condition of an object comprising the steps of

positioning an object to be measured adjacent a sensor which operates by the eddy current principle,

supplying a high frequency alternating current signal to the sensor via a connection line and so as to produce a measuring signal,

supplying the high frequency alternating current signal to an evaluation circuit to generate a temperature compensated measuring signal, and including connecting an additional compensation line to the connection line so as to compensate for the temperature of the connection line, calibrating the evaluation circuit as a function of the temperature of the sensor, and wherein the calibrating step includes calibrating the evaluation circuit as a function of the temperature of the connection line.

29.-30. (cancelled)

31. (amended) The method of claim 28[[32]], wherein the calibration step includes preparing a table with temperature dependent correction factors, and wherein during the measurement, the correction factors are selected from the table as a function of the measured temperature for correcting the temperature indicated by the measuring signal.

32. (new) A circuit for measuring a physical condition of an object, comprising

a sensor configured to operate by the eddy current principle,

an evaluation unit connected to the sensor via a connection line for evaluating a measuring signal of the sensor,

a compensation line connected to the evaluation unit for compensating for the temperature of the connection line, and

a temperature sensor arranged in the direct vicinity of the measuring coil for measuring the temperature of the sensor.

33. (new) The circuit of claim 32, wherein the sensor comprises a measuring coil, and wherein the temperature sensor is thermally coupled with the measuring coil.

34. (new) The circuit of claim 32, further comprising a generator arranged for generating a temperature sensor signal (1100).

35. (new) The circuit of claim 34, further comprising an analog circuit arranged for preparing and generating a temperature dependent temperature sensor measuring signal (1200).